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# Psychological Bulletin

EDITED BY

SAMUEL W. FERNBERGER, UNIV. OF PENNSYLVANIA

HOWARD C. WARREN, PRINCETON UNIVERSITY (*Review*)RAYMOND DODGE, YALE UNIVERSITY (*Monographs*)MADISON BENTLEY, UNIVERSITY OF ILLINOIS (*J. of Exp. Psych.*)WALTER S. HUNTER, CLARK UNIVERSITY (*Index*)HERBERT S. LANGFELD, PRINCETON UNIVERSITY, *Business Editor*

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PLATE I

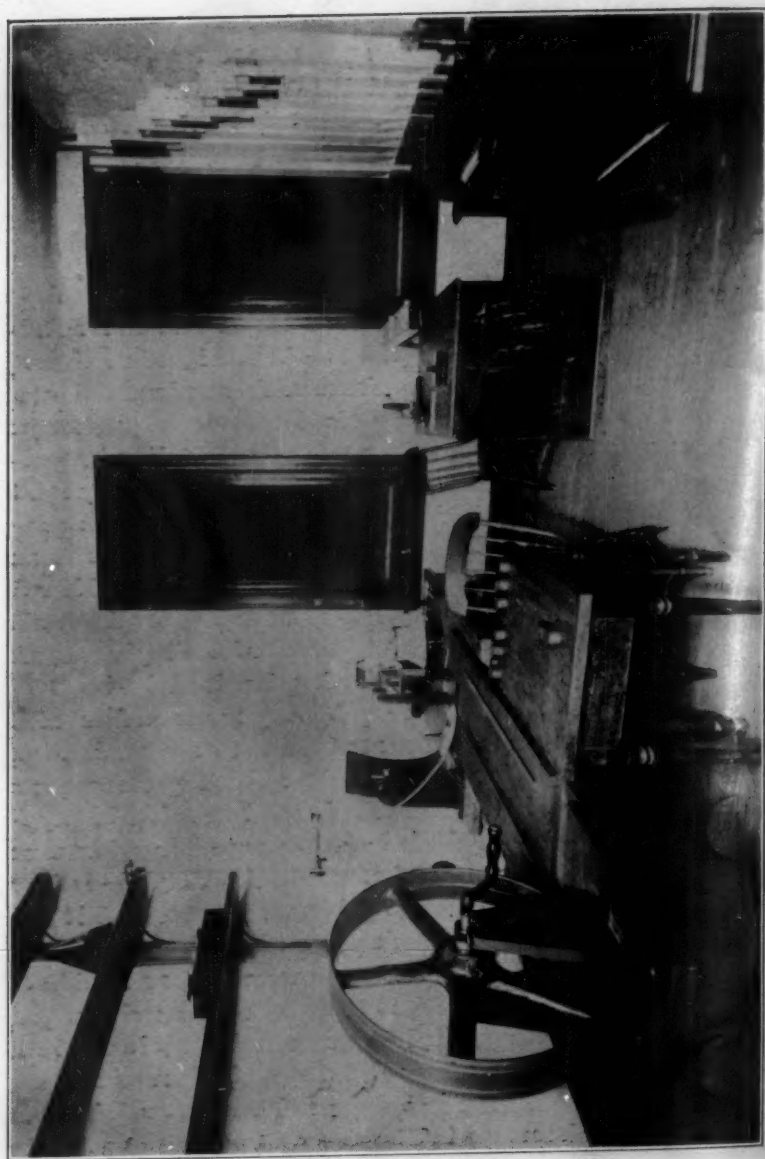


PLATE II



## THE PSYCHOLOGICAL BULLETIN

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### THE FIRST PSYCHOLOGICAL LABORATORY AT THE UNIVERSITY OF PENNSYLVANIA

Professor James McKeen Cattell, in his recent article on early psychological laboratories in *Science*, 1928, 67, 543-548, tells of the founding of the first psychological laboratory in America at the Johns Hopkins University in 1883. This Hopkins laboratory was discontinued in 1888 when G. Stanley Hall went to Clark University. The Clark Laboratory was opened in 1889 with Edmund C. Sanford as director. Cattell himself founded the Laboratory of Psychology at the University of Pennsylvania in 1887, "though it was only in January, 1889, that a special laboratory with adequate equipment of apparatus was opened."

The two photographs published opposite were found in the effects of the late William Romaine Newbold, professor of philosophy at the University of Pennsylvania. On the back of Plate I is written in Newbold's hand the following inscription: "Laboratory of the Professor of Experimental Psychology, University of Pennsylvania. Showing apparatus for measuring reaction-times. February, 1890." On the back of Plate II was the following inscription: "Laboratory of the Professor of Experimental Psychology, University of Pennsylvania. Second Room. February, 1890."

Here, then, are photographs of the "special laboratory" and the "adequate equipment of apparatus" mentioned by Cattell in his *Science* article, taken within just a year after the establishment of the first American psychological laboratory which has had a continuous existence. It may be of historical interest to note that these rooms were in the old building of the department of zoölogy, which is now the building of the department of botany. It may also be of interest to note that they were on the second floor of this building which is at variance with putting departments of psychology in basements as has so often been the practice in America since that time.

SAMUEL W. FERNBERGER

*University of Pennsylvania*

PROCEEDINGS OF THE MEETING OF THE WESTERN  
PSYCHOLOGICAL ASSOCIATION, LOS ANGELES,  
JUNE 17 AND 18, 1927

REPORT OF THE SECRETARY, WARNER BROWN, UNIVERSITY OF  
CALIFORNIA

The seventh annual meeting of the Western Psychological Association was held at the University of California at Los Angeles, June 17 and 18, 1927. About forty psychologists of the Pacific slope were in attendance. The meetings of the first day were devoted to reports on general and animal work. In the evening, after the annual dinner, Dr. Kate Gordon presented the presidential address on "The Biographic Method in Psychology" and Dr. W. R. Miles showed some new moving pictures of rats in different types of mazes and under the influence of drugs; he also showed a reel provided by Dr. Elizabeth L. Woods showing activities of the Nursery School directed by the Department of Psychology and Research of the Los Angeles City Schools.

On the following day the Association met at the Whittier State School. The morning meeting was devoted to reports of work on tests. Luncheon was served at the School and this was followed by a paper sent by Dr. L. M. Terman and talks by Dr. J. Harold Williams, Mr. Knox of the School and Dr. Ellen B. Sullivan, commemorative of the work of Fred C. Nelles for many years Superintendent of the School, whose death had occurred a few weeks before. Mr. Nelles gave up a promising career in more conspicuous positions to devote himself to the reorganization of this School, an institution to which the term "reform school" became under his administration inappropriate, and he remained to devote the best years of his life to the cause of the delinquent and defective youth of California. From the first he realized the value of psychological service in such work and called upon the ablest psychologists of the state for assistance, affording to them in turn unparalleled opportunities for service and research, as is evidenced by the rich pages of the *Journal of Delinquency*.

Dr. Shepherd Ivory Franz, University of California at Los Angeles, was elected President of the Association for the ensuing year.

## ABSTRACTS OF PAPERS

*Discrimination of Maze Patterns by Rats.* JOSEPH G. YOSHIOKA,  
University of California. (Introduced by E. C. Tolman.)

Thirty rats were given a training in alternate running in two paths of a simple maze, 6 trials per day for 4 days. Path 1 is equilateral triangular in shape; path 2 is concave pentagonal in shape formed by joining the three mid-points of the three sides of path 1. The food box in common with the starting box is placed at one vertex of the triangle. Both paths are approximately 24 feet long. After this preliminary training the rats were given a free choice of the two paths, 6 times per day for 10 days. Thus each rat had 60 choices. The results showed that the mean of the frequencies of the choice of the concave pentagonal path was  $37.70 \pm 1.43$ . By chance alone the frequency of the choice of one of the two paths out of 60 trials is  $30.00 \pm 3.87$ . The difference of the mean found and the probability computed is  $+7.70$ , which is 1.9 times the sigma difference. This difference is therefore significant. The reliability coefficient and intercorrelations, however, attest that there was some change in behavior in the two halves of this learning series. In the next series the same rats were given a forced running in the two paths, once in each, just before the beginning of the daily program. This short daily training seemed to have helped them to remember the nature of the two paths, as shown by a more significant choice. Under this condition the mean of the frequencies of the choice of the pentagonal path was found to be  $39.13 \pm 1.84$ ,  $+9.13$  above the probability allowance, and 2.1 times the sigma difference. The reliability coefficients and intercorrelations show a great deal of stability of behavior throughout the series. The better discrimination by the daily practice method, however, may be due to the practice effect of the free learning method which preceded the second series. To test out this suspicion experiment II was made with a new group of 30 rats, in which two series were reversed in order. The daily practice method gave the mean of  $41.03 \pm 2.07$ ,  $+11.03$  above the probability allowance, 2.5 times the sigma difference. The free learning method following the daily practice method gave the mean of  $36.87 \pm 2.11$ ,  $+6.87$  above the probability, 1.6 times the sigma difference. Here the degree of choice has dropped considerably. The high reliability coefficients and high consistent intercorrelations found in this series may indicate that frequency and recency factors are operative interfering with the power of discrimination. From these results it is

concluded that (1) rats can discriminate maze patterns of certain specified types; (2) in the choice of two paths of equal length, one equilateral triangular and the other concave pentagonal, the latter is decidedly more preferred; (3) the daily practice method is far superior to the free learning method for a problem of simple discrimination and preference with rats.

*The Retention of Copulatory Ability in Male Rats Following Castration.* CALVIN P. STONE, Stanford University.

Forty-five male rats castrated at the age of ninety days demonstrated the ability to copulate after castration. Much variability in the periods of time sexual aggressiveness and copulatory ability persisted was found. Some ceased to copulate during the first week after castration; others copulated during the eighth month thereafter. Considering the group as a whole, 35 per cent of the castrates had ceased to copulate before the end of the first month; 45 per cent at the end of the second month; 57 per cent, the third; 74 per cent, the fourth; 79 per cent, the fifth; and 91 per cent, the sixth. No substantial and reliable difference in the retention of copulatory ability in males allowed a limited amount of copulation prior to castration versus males not allowed pre-castration indulgence was found. Exercise of the copulatory function alone will not insure the persistence of sexual aggressiveness and the copulatory act in castrated males. In this respect sexual activity differs fundamentally from so-called "habits" or acts of skill and precision. Likewise exercise of the accessory sexual apparatus does not prevent onset of the usual post-castration atrophy.

*A Behaviorist's Definition of Consciousness.* E. C. TOLMAN, University of California.

Behavior is modifiable, subject to learning. If the environment does not prove of such a character as to make a given behavior successful, learning appears. The continuance of any given behavior unmodified may be said, therefore, to *postulate* that the environment is such that this given behavior is going to be successful, *i.e.*, appropriate to that environment. This postulative character holds as truly for behavior which has become automatic as for behavior which is but just being learned; but automatic behavior is not conscious. In other words, behavior though always postulative need not be there-



fore always conscious. Consciousness comes in at the moment of learning. That is, consciousness arises at any moment of stimulation when an organism shifts from being ready to respond in some less differentiated fashion to being ready to respond in some more differentiated fashion. A rat, for example, will be said to become conscious of white or of black, when at some moment of stimulation it then and there shifts from not being ready to respond to these two colors as different to being ready to respond to them as different. Such shifts from one degree of differentiation to another degree of differentiation may be explained by behavior-adjustments. A behavior-adjustment is to be defined as a feint towards, or surrogate for, an actual behavior. Such a feint towards, or surrogate for, an actual behavior may be supposed to serve the function of bringing into the active present the to-be-expected stimulus-results of the actual behavior. A behavior-adjustment can serve in this way to make these to-be-expected stimulus-results one of the determiners for or against any actual behavior. In the case of a rat in a discrimination box the behavior-adjustment underlying the consciousness of white or of black may be supposed to consist in a feint towards actually running (or looking) back and forth rapidly from the one color to the other. This adjustment will serve to bring into the active present the two colors as, so to speak, side by side or in juxtaposition one to the other. This resultant Gestalt (?) of combined colors can then serve as a determiner for the new actual behavior of selecting the one color rather than the other. But again the complete process of learning to select the one color rather than the other may be supposed to involve behavior-adjustments also for running back and forth from food to non-food, for running from white to food, and from black to non-food. For it will require all three behavior-adjustments taken together to bring into the acting present the total necessary Gestalt of white as differentiated from black, of food as differentiated from non-food and of white as leading to food and black as leading to non-food. But finally, after a sufficient number of repetitions this total complex (Gestalt) can be supposed to become attached automatically to the white stimuli alone or the black stimuli alone without the aid of any intervening adjustments. The new differentiation will have then become automatic and consciousness will again have dropped out.



*The Prevalence of Inaccurate Psychological Terminology.* JOHN W. TODD, University of Southern California.

The terminology of no other science is so poorly standardized as the terminology of psychology. An imposition of "psychics," "analysts" and other quacks has bred from this condition. No science with an exact terminology, *e.g.*, chemistry or physics, could have parasitic pseudosciences. Two facts explain this condition: in the first place, psychology has not made proper clearance from its parent subject, philosophy or metaphysics. The terminology developed under great teachers (*e.g.*, James and Wundt) of the past generation has been carried over uncritically into the present one. Certain talented writers of the present defer respectfully to the older terminology while recognizing behind it the more exact facts. Another reason for the confusion of psychological terminology has been the rapid growth of scientific psychology. During the first period (about 1879-1900) scientific psychology was in its exploratory or discovery phase; the scientific psychologic fundamentals were being brought to light for the first time. But because of the priority of philosophy these were usually pigeon-holed or lost in the archives. After a transition period, began the period of real expansion (the utilitarian or applied) which reached a high point about 1918, continuing to the present. Quite fortunately the trend during this high point has been to reshape psychology consistent with the stimulus-response scheme, which will shortly result in the elimination of all "double-aspect" terminology. Present confusion, therefore, may be referred mainly to the inertia of the old.

But in the meantime the next generation is being developed under a dubious tutelage. In certain formal textbooks are *bona fide* discussions of a so-called "subconscious," direct statements that the "mind" contributes meaning to experience, that there is a "mental condition" behind every attitude, that feeling is the conscious "background" of experience instead of simply the rest of a given experience. These few samples from multifarious cases indicate a striking disregard for scientific accuracy in the field of psychology. The behavior and psychosomatic psychologies, while not always consistent within themselves, are performing an invaluable service in stimulating among psychologists a better regard for scientific accuracy.

*The Elevated Finger Maze for Studying Human Learning.* W. R. MILES, Stanford University.

The maze has usually been thought of as a kind of enclosure from which the subject must escape. In the slot mazes commonly used for human learning the stylus or pencil may be pressed against the wrong wall. This introduces a large chance error which may be avoided by having the pattern in narrow high-relief and passing the finger along the top of the pattern. Such mazes may be made up by fastening wire on wooden panels, the wire bent into staples of suitable length and these driven into the panel or inserted in holes drilled according to the pattern desired, or the holes may be drilled in a regular manner so that different patterns may be built up when wanted; straight or curved pieces of wire (not staple form) may be soldered lightly to screws or tacks inserted in the board. Other means than wire of producing the single raised pattern suggest themselves and have various advantages. Probably the most generally practical form is that made from staples driven in place. German silver wire in size No. 14 ( $1/16$  inch diameter) is suitable. The blinds may terminate as dead ends or by an obstruction in the form of a small staple driven in astride the path. This latter method permits to shorten or lengthen the blinds as desired. By using the finger in contact with the narrow raised path cutaneous experience in terms of area at points where sections join is naturally combined with the kinaesthetic impressions. Maze experiments should usually be conducted with the use of blindfold rather than a screen. Our standard blindfold consists of a pair of leather automobile goggles with the glasses covered with surgeons' adhesive. A double thickness of thin white crepe or tissue paper (about  $4 \times 6$  inches) is laid over the goggles before they are brought up to the face. The tissue absorbs any moisture from the face, keeps the leather mask which holds the goggles clean and sanitary, makes the blindfold soft and comfortable about the eyes, permits the eyes to be open, but filling all the crevices where the leather does not touch the face, the paper keeps the subject from having the slightest direct peek at the maze. Mazes of this form are so easy to make and so inexpensive, the blindfold is so simple and effective that the whole routine is very practical for classes in elementary laboratory work, educational psychology, and the like.

*Human Learning on a Four Section Maze.* RICHARD W. HUSBAND, Stanford University. (Introduced by W. R. Miles.)

This study employed the Miles high-relief finger maze made up in the familiar Warden T-pattern. Eighty subjects learned mazes as follows: 60 in a four section maze, and 20 a single section. Each section was composed of 10 T-choices. The unit length between turns was 35 mm. Three consecutive errorless trials, or three correct out of four, was the criterion of learning adopted. The single section was learned in an average of 16.7 trials, as contrasted with Warden's average of 69.4 for the same pattern in a stylus or pencil maze. The proportions of errors correlate highly. The average for four sections was 26.8 trials. The outside sections are learned first. Apart from this, the ease of learning is determined by the number of changes of direction, or, stated conversely, by the number of sequences within the section. Errors increase progressively in a sequence of similar choices. In learning, the verbal or counting method is the most efficient; the motor method the least. The curve of learning descends about one error per trial.

*An Objective Measurement of the Respiratory Disturbances in Speech Disorders.* CHARLES F. LINDSLEY, Occidental College.

Accurate vocal speech depends upon delicate and precise motor coördinations. Respiratory movements especially must occur regularly and with nice adjustment, because breath and the control of breath constitute the physical basis of voice production. Experiments were conducted to determine the amount of blocking or interference in the respiratory control essential to rhythmical speech. By means of two pneumographs (one for measuring costal and the other for diaphragmatic breathing) and two Marey tambours adjusted to a revolving drum, 100 respiration curves were made in a laboratory examination of six subjects suffering from serious speech disorders of the stammering type. Records were made of (a) normal breathing, (b) reading, and (c) conversation. After a number of records had been taken they were shown to the subject and their significance explained to him. Then further records were made in which the subject was instructed to make a careful and conscious attempt to coördinate his respiration with oral punctuation or word grouping. Special difficulties such as initial consonants or difficult combinations were similarly studied. (a) The records obtained demonstrate that radical respiratory incoördinations, irregularity, and lack of self-

control accompany speech incoordinations. (b) These respiratory disturbances or inability to maintain rhythmical breathing are to be considered as symptomatic of a much more general situation involving in some cases perhaps the entire musculature. (c) Pneumograph records can be used to objectify for the subject the respiratory phase of his disorder, and to make clear to him the nature and importance of breath control. (d) Marked improvement can be effected in the treatment of stammering by such means. (e) Such an apparatus could be used in normal speech courses to objectify the nature and importance of breath control in the effective use of the vocal organism.

*An Attentional Learning Board.* WILLIAM H. ROBERTS, University of Redlands.

A report of this work as published in *The Journal of Educational Psychology* for April, 1926, with additions and demonstration.

*Positive Results with the Word-Association Test of Guilt.* H. R. CROSLAND, University of Oregon.

I have resurrected the method, put in emendations of my own, worked out a technique for its application, and have done statistically what no one else has done, namely, applied at least thirty criteria of guilt to the results obtained from the subjects tested and have finally determined guilt by the method of applying the theory of probability to the total number of criteria exhibited in the records from each person. The test has worked beautifully for me on three cases of thieving, one case of forgery, and five cases of cheating. In testing nine subjects proven guilty, I have used forty-three controls, making a total of fifty-two persons tested. At the present moment I am working on a method of weighting and evaluating the various criteria by the method of considering the sigmas of variation away from the mean for any group tested. Without such a refined method of weighting and scoring, my last application of the test, the test being loaded against its own success, I obtained success with it to the degree that, had I tested 10,000 persons, as I did test the eight who were my subjects, 9,949 of them would have given fewer signs of guilt than my victim did manifest. I shall presently be able to show which of the various criteria are the most dependable, much after the fashion of Hull and Lugoff and Hubbard. All this in the interests of combining the test with the systolic blood-pressure measurement method,



the breathing measurement method, and the psychogalvanic method next year and the years to follow, in a host of research projects.

*Major Problems and Techniques in Motor Skills.* ROBERT H. SEASHORE, Stanford University.

Among the major problems in motor coördination may be listed (1) the nature and extent of individual differences in skill, (2) the development of an adequate set of theories of neuroglandular-coördination, (3) the interrelations of various motor skills, their specificity or generality, and their dependence upon the total situation, and (4) the prediction of human behavior from previous performance samplings. The techniques for experimental investigation may begin with job analyses of various activities, but these analyses are greatly influenced by the implicit assumption of theories of motor skills. Historically it usually has been attempted to analyze complex movements into simple factors such as speed of simple reaction time, steadiness, etc. A later theory was that of basic motor capacities. Both theories have made use of various indices of motor skills. A third possible theory is that of taking an accurate sampling of various forms of serial or continuous action on the assumption that this will be representative of other motor skills. The use of the terms *indices* and *aptitudes* may be considered under any of the theories. A large list of available measures of motor coördination has been compiled, and in connection with the findings of experiments now in progress, the general bearings of this work in this field may be evaluated, outlining the relative importance of (1) vocational guidance or selection, and the means thereof, and appropriate places to apply, (2) the best means of training, and the possibilities in different activities, and (3) the possible development of machines to take the place of human coördinations or to cover special conditions.

*The Defensibility of Abridging the Stanford Binet Examination.* FLOYD RUCH, Stanford University. (Introduced by L. M. Terman.)

Clinical psychologists often employ as a time saving device some form of abridgement of the Stanford Binet examination. Experience shows that very little error is introduced by abridgement but it is rather astonishing that exact knowledge of the amount of error introduced is lacking.

This paper reports the correlations obtained on a clinic population.



The I.Q.'s obtained on the complete scale were correlated against the I.Q.'s obtained on each of the abridgements studied. The range of talent on the complete scale was from I.Q. 23 to I.Q. 80 and is described by a standard deviation of 11.2. The publisher's record blank for each case was scored as though only the items of the abridgement had been given. All scores were expressed in I.Q. points to avoid correlation due to chronological age.

The abridgements studied are described below.

I. Abbreviated scale which is composed of the items designated by means of an asterisk in the publisher's record booklet.

II. "Upper-lopped" scale which consists in the practice of assuming that no successful responses will occur on the level above that at which there was but one correct response.

III. "Lower-lopped" scale consists in assuming that no failures would have been made if testing were continued below the level at which there was only one incorrect response.

IV. "Double-lopped" scale which is a combination of both lopping methods including cases where lopping is possible at top, bottom, or both top and bottom.

The double-lopped scale is somewhat more accurate than the abbreviated scale. The final choice between the two will depend upon the time factor. Experience shows that the two methods save approximately the same amount of time so the double-lopping method is indicated. A reliability figure based on the same population is given. Correlating odd against even numbered items gives a coefficient of .864. Correcting this raw coefficient by means of the Spearman-Brown formula gives .927. This figure is about equal to retest coefficients of .933 and .94 reported by Terman.

*A Test in Graphic Art.* ALFRED S. LEWERENZ, Los Angeles City Schools.

Before going extensively into the matter of constructing a series of art tests, a survey was made of all available references on art tests and related studies. The work of J. S. Clark, M. V. O'Shea and G. Kerschensteiner, who were pioneers in the field, was studied. Various scales for judging children's drawings were examined such as those of Thorndike, 1912; Kline-Carey, 1922; Child Study Committee, 1924; Providence, 1926; and Crow, 1926. An analysis of the content of the Los Angeles visual art course of study was next made with regard to skills and abilities required that might be tested. It

was felt that the difficulty with previous tests was that they attempted to measure achievement rather than native ability. On an achievement test a child of superior art ability but no training will not do as well as the less gifted child who has had training. The task then became to construct a series of tests utilizing art subject matter but indirectly testing certain skills. Nine tests have so far been worked out for measuring abilities which appear to be fundamental to success in art and are as follows:

1. *Recognition of Color*. The test is a measure of the functional efficiency of the eye as a sense organ.
2. *Shades and Shadows*. This is a test of observation.
3. *Visual Memory of Proportion*. A test requiring ability to reproduce forms by drawing them from memory.
4. *Effective Arrangement of Line*. A device for measuring originality and imagination.
5. *Recognition of Proportion*. A measure of aesthetic appreciation of form, balance and composition.
- 6, 7, 8. *Knowledge of Perspective*. The three tests involving parallel, angular and cylindrical perspective call for ability to think about a composition logically and analytically.
9. *Knowledge of Subject-Matter*. This is a vocabulary test made up of names and terms peculiar to art work.

Approximately 1,000 students have been given the series with all grades from the third to the senior year in high school represented. Age norms for total scores show consistent yearly increases. Results of retests have shown insignificant variations between first and second average class scores. The data indicate also that for pupils of normal intelligence the tests are reliable and that a retest gives approximately the same score. Experience with the test has shown that for every child of ability in an elective art class there is probably another with ability not receiving training. The nine tests administered as a battery constitute a counselor measure prognostic in nature. Used separately by teachers of art the tests can be used for pupil diagnosis and as a measure of progress in instruction.

*Trait Differences between Three Groups in Education (Teachers, Research Workers, and Administrators)*. MILTON B. JENSEN, Stanford University. (Introduced by L. M. Terman.)

Marked trait differences are reported upon the basis of returns from an extensive questionnaire or personal report blank. Ratings

were secured on 403 men engaged in educational work, by from one to seven judges. The ratings were in terms of differences between abilities as teachers and research workers in the first comparison, called the T-R comparison, between administrative and research abilities in the second, called the A-R comparison, and between teaching and administrative abilities in the third, T-A comparison. Ratings on these individuals were weighted with respect to the reliability and variability of each of the judges and the number of judges rating. From the ratings secured it was determined that the judges varied markedly in their abilities to rate in the various comparisons. It was also determined that, in the opinion of the judges, though teaching and administrative abilities are very closely allied, there are differences between teaching, research and administrative abilities of sufficient magnitude to justify a study of each. Of the 403 men rated, 307 were selected as being the most valuable for the purposes of the study. This selection was based upon the magnitude of the differences between the three mentioned traits for each of the individuals. Exceptional care was taken to secure groups fitting the following descriptions:

1. Teachers rather than research workers.
2. Research workers rather than teachers.
3. Administrators rather than research workers.
4. Research workers rather than administrators.
5. Teachers rather than administrators.
6. Administrators rather than teachers.

The data quoted are based upon the responses of 204 of the 307 cases selected who returned their questionnaires in time for inclusion in the study. On the basis of the responses of the individuals composing the criterion groups, scales were constructed for the objective differentiating of teaching, research, and administrative abilities. An average reliability of .92 is reported for the scales (T-R, .88; A-R, .95; T-A, .90). Close relationships were found between scores on the scales and ratings of the judges on a limited number of cases not used for criterion purposes. Scores on the scales were also found to be closely associated with well-established vocational preferences as indicated by several years of successful experience. The data also indicate that test scores are not dependent upon experience.

*Data on Certain Music Tests.* PAUL R. FARNSWORTH, Stanford University.

Studies have been made on the Seashore and Kwalwasser music tests with university populations of 140 or more. In these batteries are the following tests: discrimination of pitch, intensity, time, rhythm, melodic and harmonic sensitivity, tonal memory and consonance. Mean percentiles were first obtained. Four checked well with the theoretical norms. The following, however, did not: harmony 66.5, melody 68.3, rhythm 72.4, and pitch 60.6. Two groups from Iowa State University with populations of 218 and 190 gave mean percentiles on pitch of 40.2 and 42.2. A study of reliabilities was next attempted. The odd items correlated against the even gave the following  $r$ 's: consonance .36, memory .83, pitch .76, intensity .66, melody .26, harmony .17, time .51, and rhythm .47. Similar data from Iowa gave pitch .74 and intensity .61. Intercorrelations between the tests, sex differences, correlations with Thorndike College Aptitude Tests have also been worked out.

*Mills College Studies of the Occupational Interests of Women.*  
ESTHER ALLEN GAW, Mills College.

The first study, the greater part of this report, is that of the Freyd Occupational Interests Blank (Women), which has been used for the past two years. In 1925-26 it was filled out by all students, and in 1926-27 by all entrants. The blanks were tried in the hope that they would be useful in giving vocational advice. In order to give advice to freshmen based upon the questionnaires they were evaluated for that class in the first year. At that time the mean choice of each occupation was obtained by giving an arbitrary numerical value to each of the five indications of like or dislike, and the standard deviations were also calculated. The norm was made for 191 freshmen during the first year. The question at once arose as to whether the interests change from year to year. In the fall of 1926 a second blank was filled out by all sophomores who had filled a blank the previous year. Blanks of 105 students thus became available for comparative study. First it is noticeable that the means and standard deviations of the 105 freshman choices are practically the same as those of the original freshman norm of 191 cases. In both years Interior Decorator and Designer were the highest mean choices and Factory Worker and Laundry Worker the lowest mean choices. There is doubt as to whether such occupations as the last two should



be included in a college blank. A study of a few differences between means of the two years in light of the sigma of the difference indicates that they are not significant.

Next it is apparent that the mean choice of freshmen and the deviations therefrom is almost identical with that of sophomores. The correlation between the mean choices of the two years is almost  $+1.00$ . But when the correlation is computed, with the individuals constant and the freshman choice and the sophomore choice the variables, the sixty-seven results vary from  $-.11$  for Nurse to  $+.86$  for Physician, with the middle 50 per cent of the correlations ranging from  $+.40$  to  $+.61$ . These were calculated by the Pearson formula. The greatest likes and the greatest dislikes were not necessarily the most highly correlated. The study makes it apparent that advice should be given on the basis of choices recently made, at least for freshmen and sophomores. A study has also been made of the interest of teachers scored for overlapping in six other occupations by Mary Hogg, a graduate student. It shows that the interests of teachers, expressed on the Freyd-Cowdery blank, have very little overlapping with the interests of authors, retail saleswomen and department store saleswomen. They do overlap those of business women, housewives and stenographers. This is only a small part of a much larger study.

*Some Aspects of Applied Psychology in England.* FRANCES GAW, University of California at Los Angeles.

A brief account of the work in vocational and industrial psychology carried on by the National Institute of Industrial Psychology, and the Industrial Fatigue Research Board. Mention also of the psychological studies of delinquents done under Dr. Cyril Burt in London, and of the use of mental tests in various schools in England.

*A Case of Automatic Writing.* SARA CAROLYN FISHER, University of California at Los Angeles.

Presentation of findings obtained in investigation of a case of automatic writing in a normal personality. A well developed system of ideas expressed itself through use of writing and speech musculature while the subject was in a hypnoidal state. A high degree of amnesia for the content of the automatic performance was shown by the subject when the normal state had been recovered.



*Adjustment Work in Reading with Different Types of Cases.*  
GRACE M. FERNALD, University of California at Los Angeles.

Three points are to be stressed, (1) the importance of the initial steps in adjustment work, (2) the methods of correcting defects, and (3) reading adjustment as the solution of certain delinquency problems. Demonstration with children accompanied the discussion.

*A Case of Marked Negativistic Attitude in a Young Child.* ELIZABETH L. WOODS, Los Angeles City Schools.

The paper described the behavior of a child of two years, who entered the Nursery School with a negativistic attitude, which exhibited itself in long periods of stubborn silence, food refusals, and other marked unsocial and negativistic behavior. Two questions were aroused by this picture: (1) Is behavior of this sort traceable to inherited tendencies, or is it a product of the environmental factors surrounding the child? (2) How far can such behavior be modified by training? This paper made no attempt to answer the first question, beyond collecting all available data as to the child's physical and mental status, and as to his heredity—and making these and daily observations as to the child's behavior a matter of permanent record, to which it is hoped to add others. As to the second question, it has been found possible to modify the behavior very markedly, in a period of eight months' time. Descriptions of the behavior, and the program for its modification were given.

*The University Nursery School as a Co-operative Project in Research.* KATHERINE L. McLAUGHLIN, University of California at Los Angeles.

A nursery school was established at the University of California at Los Angeles in September, 1923. Though fulfilling a fourfold capacity as: (1) a prekindergarten school; (2) an agency for helping mothers in child training problems; (3) a teacher training center; and (4) a research laboratory, it is this latter function that is of present interest. The limited amount of scientific knowledge available regarding the character of the ascending stages of maturity of the preschool child is inadequate to meet the rapidly growing interest in nursery schools. Furthermore these schools should be kept from crystallizing, as did the early kindergartens, before their procedure is laid on scientific foundations. In the University Nursery School members of the faculty and several Los Angeles physicians are carry-

ing on a coöperative project in research. Dr. Helen B. Thompson, head of the Home Economics Department, is investigating certain nutritional problems; Dr. W. M. Happ, pediatrician of Los Angeles, is studying physiological aspects of growth; Dr. W. Stewart, orthopedist, is giving attention to postural matters; and the daily health inspection adds further data to these studies in physical development. Dr. Shepherd I. Franz has provided for mental testing. Drs. Gordon and Gaw have given Stanford-Binet tests to the three year olds and Kuhlman-Binet tests to those younger. Results are being correlated with certain experimental studies under way in the Department of Education. These include vocabulary and play material studies by Miss Barbara Greenwood; experiments in the development of children's number ideas by the writer; and an analysis of tone and rhythm patterns by Miss Helen Christainson, now Director of the Golden Gate Nursery Schools, San Francisco. Data from all these studies supplemented by voluminous diaries of each child kept by college students aid in emphasizing the study of the child as a functional unit and an integrated personality.

PROCEEDINGS OF THE TWENTY-THIRD ANNUAL  
MEETING OF THE SOUTHERN SOCIETY FOR  
PHILOSOPHY AND PSYCHOLOGY, LEXINGTON, VA.,  
APRIL 5 AND 6, 1928.

REPORT OF THE RETIRING SECRETARY, J. A. HIGHSMITH, *North  
Carolina College for Women*

The Council of the Southern Society for Philosophy and  
Psychology, met April 5, 10:00 P.M.

The following recommendations were adopted by the Council:

(1) For officers for the year 1928-29: President, R. L. Geissler;  
Secretary-Treasurer, Paul L. Boynton (term of three years); Mem-  
bers of the Council, Josiah Morse, Ethel Bowman, Goucher College,  
to fill the unexpired term of J. R. Miner who resigned because he will  
be absent from the country next year; Max F. Meyer, to fill the  
unexpired term of L. R. Geissler.

(2) That the invitation of President Brooks and Professor  
Meyer of the University of Missouri, to meet there next year, be  
accepted.

(3) That twenty-three proposals for membership are approved  
and recommended to the Society.

(4) That Dr. J. F. Dashiell be appointed chairman of a com-  
mittee of three—the other two members to be selected by the chair-  
man—to coöperate with Dr. Max Meyer in his plans for the study of  
the teaching of the first course in psychology. The committee to be  
given power to act.

(5) That Dr. Peterson's committee on the teaching of psychology  
in southern colleges, be made a standing committee of the Society.

(6) That the regular time for the meetings of the Society be  
fixed as Friday and Saturday just preceding Easter, subject to change  
by the council.

(7) That the Society express its appreciation for the warm hos-  
pitality and many courtesies shown it by Superintendent and Mrs.  
Cocke, Colonel Bates, members of the faculty and the students of the  
Virginia Military Institute.

BUSINESS MEETING OF THE SOCIETY, 9:00 A.M.

APRIL 6

PRESIDENT MORSE, Presiding

The recommendations of the council were read. By a vote of the society the recommendations of the council were accepted and ordered published in the proceedings of the society.

The report on "Training in Psychology" was then read and discussed. The report was adopted and its printing authorized.

The preliminary report on the teaching of Philosophy in southern educational institutions submitted by Dr. Lovejoy was accepted.

LIST OF PAPERS

1. *The Nature of Traumatic Experiences.* ENGLISH BAGBY, University of North Carolina.
2. *Some Aspects of Personnel Accounting in Colleges.* WILLIAM M. BROWN, Washington and Lee University.
3. *Are There Any Native Emotions?* J. F. DASHIELL, University of North Carolina.
4. *Simple Apparatus for Continuous Multiple Choice Experiments.* J. F. DASHIELL, University of North Carolina.
5. *The Effect of Exhaust Gases Upon Performance in Certain Psychological Tests.* ROY M. DORCUS, Johns Hopkins University.
6. *Interaction of Philosophy and Psychology.* CHARLES A. S. DWIGHT, Keuka College.
7. *A New Type of Laboratory Manual.* A. S. EDWARDS, University of Georgia.
8. *An Old Solution to the New Problem of Instinct.* JOHN M. FLETCHER, Vanderbilt University.
9. *Social Significance of Fatigue.* H. M. JOHNSON, Mellon Institute.
10. *A Theoretical and Statistical Critique of the Concept of Social Intelligence and of Attempts to Measure Such Process.* VIVIENNE R. McCLATCHY, Florida State College for Women.

11. *A Preliminary Investigation in Regard to the Relation Between Commonality of Association Responses and Intelligence.* VIVIENNE R. McCLATCHY, Florida State College for Women.
12. *Where yet was ever found a mother (psychologist), who'd give her booby for another (psychology)?* MAX F. MEYER, University of Missouri.
13. *The Procedure of Thinking About Mind.* J. B. MINER, University of Kentucky.
14. *A Constant Error in the Prediction of Scores.* JOSEPH PETERSON, George Peabody College for Teachers.
15. *An Analysis of the Behavior of Kittens Toward Rats.* W. W. ROGERS, New York University.
16. *The Neo-realistic Conception of Music.* HERBERT SANBORN, Vanderbilt University.

#### ABSTRACTS OF PAPERS

*The Nature of Traumatic Experiences.* ENGLISH BAGBY, University of North Carolina.

Many of the types of habit disorders which have been subjected to serious psychological study seem to have their origin in single episodes. Such episodes, or experiences, are said to be "traumatic" because they establish conditioned fear reactions which are maladjusting and *persistent*. On the other hand, Watson and Raynor have made experimental studies of conditioned fears and they report that attachments of the sort are *impermanent*, lapsing after a short interval of time. There must, then, be some peculiar circumstance connected with episodes which have permanent effects.

A study of cases shows that episodes are traumatic under the following conditions.

(1) The experience serves to make the individual think, with some form of intense fear, of future dangers which are likely to develop. That is, there is a fear of consequences.

(2) The experience is of such a sort that it cannot be assimilated; the individual cannot determine upon an adjustment to it. This is not due primarily to the character of the experience itself, but to the fact that the individual does not "frankly face his problem."



Instead of a reaction of constructive thinking and of a seeking of advice, he engages in distraction activities, or repression.

In short, habit disorders which appear to arise from terrifying experiences are more essentially due to established tendencies of repression and these tendencies are the "disease" which must be "treated."

*Some Aspects of Personnel Accounting in Colleges.* WILLIAM M. BROWN, Washington and Lee University.

Developments in modern educational theory and practice have led, among other things, to a more and more searching inquiry into ways and means of meeting the needs of the individual pupil and student. At present, there is a definite trend among institutions of higher learning to make provision for "personnel accounting," a system of organization whereby the student receives special consideration so far as his particular needs and problems are concerned and, in addition, the college exercises a check on the rather excessive numbers of students who do not complete the college course, either through failure in class-work or for some other reason. While "personnel accounting" in colleges is still more or less in the experimental stage, there are certain more or less well recognized trends which are to be found at the present time. Such officials as the dean of men, dean of women, dean of freshmen, assistant dean, personnel officer, vocational advisor, and many others have been given rather definite duties to perform in this connection. Unfortunately, however, in most institutions there is still a woeful lack of organization for dealing with student personnel and even in those where the problem is being attacked with vigor, the absence of coördination between the various agencies involved is decidedly apparent in most instances. In the present paper an attempt is made to suggest possible steps in the direction of "personnel accounting" such as may be taken by the smaller or medium-sized college, and also to indicate and evaluate some of the more commonly employed aids for this purpose. Among the latter may be included the following:

1. Methods of selection and admission of students.
2. Personnel record cards.
3. Intelligence and aptitude tests.
4. Vocational guidance programs.

5. Regulation of student organizations.
6. Placement and employment bureaus.
7. Psychological clinics.
8. Simplification of record systems.
9. Use of faculty committees, special administrative procedure, etc.

*Are There Any Native Emotions?* J. F. DASHIELL, University of North Carolina.

On the basis of recent experimental research, are we warranted in assuming that there are distinct native visceral reaction patterns corresponding to the traditional names of the emotions? Summaries are presented (a) of the direct instrumental attacks upon visceral processes, (b) of the "facial expression" work, (c) of the many attempts to find respiratory and circulatory changes paralleling "pleasant"—"unpleasant," (d) and of observations on infants. Attention is directed to inconsistencies of findings throughout.

The thesis is proposed that the conventional emotion-names refer really to types of viscerally-facilitated or -inhibited overt behavior patterns, and that whatever patterning there is among the visceral segments themselves is acquired. There are no original and distinct emotions.

*The Effect of Exhaust Gases upon the Performance in Certain Psychological Tests.* ROY M. DORCUS, Johns Hopkins University.

This study was undertaken to determine the effects of exhaust gases upon the performance of individuals in tasks involving motor coördination, attention and memory and so forth. The increase in the number of automobiles and the accompanying increase in exhaust gas has made this problem of practical importance. Six subjects were exposed to exhaust gas from a gasoline motor for about 12 weeks for a period ranging from about 2½ to 6 hours per day, excepting certain control days. During this time they were examined both under control and gas conditions on the following psychological tests: tapping, steadiness, dynamometer, location memory, continuous reaction, substitution and arithmetic. No significant difference was found between the performance during control periods and the performance after exposure to 2, 3, or 4 parts of CO per 10,000 of air.

*The Interaction of Philosophy and Psychology.* CHARLES A. S. DWIGHT, Keuka College.

The paper raises the question whether philosophy and psychology are separable, recognizes the general impulse to specialize on the one hand and to form systems on the other, points out the dichotomy which practically severs asunder researchers and thinkers in a cosmic way, and presents for consideration this dilemma: either metaphysics *does* leak into psychology (in which case such admixtures should be clearly labeled as opinion) or it does not (leaving such questions as the self, or purpose, or character, to be settled elsewhere, out of psychology's little court) but in any case fairness and frankness in treatment and debate ought to be secured. As a fact many of the statements passed out as scientific findings are but mental constructs, or inferences from facts, legitimate if it be understood that they are individual visualizations of the data. In view of these difficulties or embarrassments it might be well to utilize, as a principle of methodology, the old rubric of probabilism, or probabiorism, as denoting varying degrees of "proof" or certainty—these of course being personal estimates, which will almost inevitably be colored by one's philosophy. Philosophy and psychology may be mutually helpful, and their witness need not be antagonistic, but antiphonal. While for purposes of convenient classification the two disciplines may be kept apart, actually they parallel, and will reciprocally influence, each other. Recognition of this fact will conduct to clarity of view, and to constructive, not destructive, discussion. As a counsel of perfection, so far as the limitations of the human understanding permit, the interaction of philosophy should be desired, not feared.

*A New Type of Laboratory Manual.* A. S. EDWARDS, University of Georgia.

A manual has been worked out for a science course for beginning students in psychology. This course is ranked as a natural science giving four hours credit; three hours a week for a year are given to lecture and discussion; one laboratory period of two to three hours a week for the year are given to the laboratory work. If there is anything new about the manual and the course it lies in the combination of demands made upon the students rather than in any one unique feature. These demands include: use of a minimum of instructions and requiring a maximum of insight and effort on the part of the student; work done by the student rather than by the

instructor; the study and application of scientific method; doing all work as nearly as possible as it would be done in more advanced experiment work; the complete writing up of experiments according to a seven-fold outline which requires the application of scientific method; the execution of all graphs, tables, legends, etc., as nearly as possible as they would be done for a journal article; originals are provided to be sued when the students are ready for them.

Fifty-five experiments are included which deal with a representative groups of psychological subjects. From these, thirty are selected as the minimum for the year's work. Each experiment requires from two to three hours work in the laboratory and must be finished and written up before the student leaves the laboratory. Details of the experiments, procedure and working out of the course are discussed.

*An Old Solution of the New Problem of Instinct.* JOHN M. FLETCHER, Vanderbilt University.

The problem of instinct is undergoing renewed discussion, and is, notwithstanding this fact, far from being adequately treated in psychology. The issue is of peculiar concern to psychology, and is probably to be settled by psychology rather than by biology or sociology.

This paper concerns itself with the origin of instincts, but by implication it deals with the nature of instincts. It starts out by presupposing the solution of several mooted questions. (1) In the first place it assumes the existence of instincts, using as an example of what is meant by such behavior the account of the crustacean *Amphithoe* hatched from eggs by Holmes (*Evolution of Animal Intelligence*, pp. 93-94). (2) In the second place it assumes the actuality of consciousness as a phenomenon with which psychology as a science is called upon to deal. (3) In the third place it assumes that consciousness is coeval with animal life, and that in the phylum as in the individual it is present in maximum degree in the initial rather than in the final stages of development of behavior forms. (4) In the fourth place the solution of the problem of instinct here advocated assumes that consciousness is a causal factor in the determination of animal behavior. It is understood that consciousness is not to be conceived as a distinct and independent psychic entity, but as an essential component of a complex set of behavior determinants. Further, it is urged that if we get rid of the conception of causality as being a force of some sort passing over from one event to another



and recognize it as implying in psychology what it can only imply in physics, namely, "invariable concomitance under known conditions," it does not seem to compromise psychology to admit consciousness as a causal factor in the life processes of animals.

The theory of instinct here proposed is in certain respects in harmony with the historic "lapsed intelligence" theory, *i.e.*, in its assumption of the function of consciousness and in the genetic sequence of the different types of animal behavior. It, however, is not in agreement with the assumption that the earliest forms of behavior were "intelligent." It is only necessary to assume that they were nonmechanized, indeterminate, that they arose as random adjustments to states of irritability of sentient creatures. All forms of mechanized behavior, instincts included, must be assumed to have had origin in such behavior as this if we are to work out a theory of evolution that is consistent throughout. The chance origin of complex concatenations of reflexes, each step of which must be completed successfully and in the right order before a creature can reap any advantage, is the only apparent alternative to the theory here proposed, and this sort of evolutionary hypothesis seems inconceivable.

The most cogent objection to this historic theory of instinct is that it rests upon the possibility of the inheritance of acquired characters. To meet this objection the following suggestion is offered: "In the earlier forms of life animal protoplasm was of such character as to make possible the transference of the effects of individual experiences to offspring, but with the increase of differentiation of structure and specialization of function the hereditary transmission of such effects became increasingly difficult and increasingly dysgenic, in that it involved the inheritance of the effects of losses and mutilations, which are the more serious the more highly specialized the organism. Hence, through selection, there must have begun in the phylum a tendency toward the disappearance of this characteristic, so that we may say that the Lamarckian hypothesis holds true when applied to the lower or older end of the phyletic series, and Weismannism becomes more and more strictly applicable to the conditions found to exist in the more highly differentiated structures of recent life forms."

The recent work of Dr. Stewart of Cheddleton Hospital, England, with certain types of colon bacilli has given increased plausibility to a theory of this sort. He has found it possible to subject these bacilli to certain sugars and by that to establish hereditary lines that differ in the important capacity to ferment lactose. This at least suggests



that possibility that earlier and simpler forms of animal life may be assumed to differ in their tendency to transmit the effects of individual experiences.

*The Social Significance of Fatigue.* H. M. JOHNSON, Mellon Institute, University of Pittsburgh.

If a person declares, in an effective manner, that he is fatigued, he will, as a rule, receive respectful and favorable consideration. If he declares that he is drunk, the attitude of his fellows, however charitable or genial, will contain an element of disrespect. The two conditions—fatigue and intoxication—probably differ from each other chiefly as to the manner in which each was brought about. Once produced they are essentially similar. Every major symptom of intoxication which has psychological interest is counterfeited in fatigue. As after small doses of alcohol or of an opiate, so after moderate exertion: the first effect is apparent excitation. That one can settle down to a good day's work after an early morning game of golf, a walk, an hour in the garden; that such tasks as require long sustained effort along a restricted line can be performed later in the working day, or in the evening, than earlier, are matters of ordinary experience. That certain special tasks—miscalled "tests"—can be performed more speedily and more accurately at the end of the day than at the beginning, is shown by carefully controlled experiment. Certainly, if one considers nothing but the rate of output, a person appears to be better fitted for work after several hours of labor than at the beginning, if certain conditions are satisfied.

As light drinking is often attended by euphoria—an estimate of personal well-being which onlookers may not share: so is moderate exertion. As later stages of intoxication are accompanied by grosser impairment, so are the later stages of fatigue. One of the earlier forms is a growing clumsiness, particularly of the more delicate coördinations. The coördination of the two eyes occasionally fails, at least for brief times, giving rise to double vision. Speech defects, not merely in the form of slovenly enunciation, but also in the loss of words, are common in fatigue. Disturbances of attention, important in respect to accidents, in the factory and on the highway, are striking symptoms of fatigue. A frequent form of attentional disorder consists of a loss of normal distractibility. The person may perform a restricted task acceptably, but disregards important demands made on him by unexpected changes in his surroundings. Interruptions of his

attentional attitude, or the failure of a response, may produce an emotional outburst, such as do not ordinarily appear when he is fresh. Social restraints become increasingly disregarded, so that the person becomes inconsiderate, overbearing, quarrelsome, or may impose on others by slacking. Profanity, obscenity, and the like, are more conspicuous in fatigue than in the normal state; and are sometimes manifested at such times by persons who are normally decent. In more advanced stages the fatigued person may lapse into infantile behavior, such as talking to himself, and addressing inanimate objects, which he tends to personify. The later stages are often marked, as in the Chicago experiments on deprivation of sleep, by hallucination and delirium—an effect which the dervish strives to obtain by dancing before the Lord.

Finally, as in alcoholism and in drug addiction, the tired person may exhibit an abnormal appetite for the agent of impairment. He may postpone the hour of retiring, seek countless odd jobs to give the postponement an appearance of reasonableness, and read long after he does retire. If others attempt to induce him to hasten to rest, he may show a resentment like that of the drunkard who, long after he had passed the pleasurable stages of intoxication insists upon continuing to drink and upbraids his friends who suggest that he go home.

Although all the above symptoms are observable every day, this comparison of the two conditions may seem to be fine drawn. That the resemblance is by no means superficial is indicated in the theory of Verworn that both fatigue and narcosis are essentially special forms of cell-asphyxiation; and in the fact that experimental deprivation of oxygen, such as was performed on American aviators, often produced every psychological symptom common to alcoholism and to fatigue. The possibility is not to be overlooked, that as many products of incomplete oxidation of food materials of the body belong to the families of the alcohols and the ethers, it may be that in fatigue the cell is actually intoxicated by products of its own manufacture.

Certain social considerations may now be set forth.

If the mild euphoria which accompanies one or two drinks is in itself an evil, and therefore to be legislated against, so is the euphoria which follows a game of golf. It may be that the golfer intoxicates himself with alcohols which he manufactures by an expensive and time-consuming method, in the course of his activity. Perhaps this matter should be inquired into, that something may be done about it.

If the euphoria which comes from alcohol is in itself a good, let

us take comfort; one can get it by attaining the right degree of fatigue. Happy is he whose work produces just the right amount, and at just the right times of the day; he can regain his happiness though he has lost his liquor.

If the general mental and moral deterioration which accompanies immoderate drinking is undesirable for its own sake, and not merely because of the manner in which it was brought about, then the reformers have not fairly started their reform. That end cannot be attained until by proper distribution of labor and rest, and by the abatement of poverty, overwork will become unnecessary.

If the picture of the unsocial behavior of the tired individual is unlovely, his own problem of personal morality includes that of efficient labor and proper use of the means of rest. Of such means adequate sleep is probably the greatest, as well as the most ignored.

As one might argue in favor of light drinking rather than total abstinence, so one might argue against slothful rest. If one never drank, never smoked, never indulged in coffee, never worked hard, and always retired by 9:30 P.M., one might postpone one's final dissolution for many years. Is not longevity dear at the price? A certain thrill is to be had from depleting one's strength and building it up again; and zestful, creative, interesting and moderately fatiguing work remains the ideal method.

*A Theoretical and Statistical Critique of the Concept of Social Intelligence and of Attempts to Measure Such an Ability.* VIVIENNE R. McCLATCHY, Florida State College for Women.

A theoretical criticism of recent attempted definitions of social intelligence and of the results from the George Washington Social Intelligence Test is presented. The investigator reports: (A) negligible differences among three groups—(1) a class group, (2) a group of social fraternity women who were chosen for their social adaptability, and (3) a group of nonfraternity women; (B) a coefficient of correlation of  $+.16$  between the George Washington Test scores and the ratings for social adaptability of the socially selected group; (C) a coefficient of correlation of  $+.53$ , P.E.  $.09$  between the scores of 27 persons on the George Washington Test and their scores on the Introversion-Extroversion Personal Inventory issued at Colgate University. Reference is made to the reports of Professor Moss and Professor Pechstein at the Columbus meeting of the American Psychological Association, and to the article by Pintner and Upshall

on Social Intelligence Measurement in *School and Society* for March 24, 1928.

*A Preliminary Investigation in Regard to the Relation Between General Intelligence and the Commonality of Association Responses.*  
VIVIENNE R. McCLATCHY, Florida State College for Women.

Reference is made (1) to an investigation which reported a significant correlation between ratings on originality and uniqueness of response; (2) to a study published by the writer in the *Journal of Experimental Psychology* in 1924 which reported high positive correlations between commonality of response and certain linguistic tests. The present investigation with 48 students reports a coefficient of  $-.27$  between the Kent-Rosanoff Test (given as a group test) and the Otis Self-Administering Test, and a coefficient of  $-.29$  between the Kent-Rosanoff Test and the Otis Group Intelligence Test, Advanced Examination. The writer reports that a frequency table of responses from college students to the Kent-Rosanoff list is being compiled.

*Where yet was ever found a mother (psychologist), Who'd give her booby for another (psychology)?* (Apologies to John Gay, 1688-1732.) MAX F. MEYER, University of Missouri.

The time seems to be ripe for us psychology teachers, instead of each of us teaching "a" psychology, or, worse, teaching "psychologies" with a pretense of showing thereby our "open-mindedness," to begin teaching "psychology" at least in the first course, without the indefinite article. Who teaches a first course in chemistry as "an orientation course acquainting the student with *the different schools* of chemistry"? As long as we psychology teachers do anything like that, we profess our lack of faith in our science; we confess either our conviction of the bankruptcy or our conviction of the nonarrival of this branch of science, psychology. If we trust that a slow process of evolution will determine the proper contents of the first course of psychology—as it undoubtedly will if numerous generations wait patiently—we act like savages who do not have at their command modern civilization with its rapid methods of communication. There is only one objective method of determining the most suitable contents of this course. It is by enumerating the results of a vote. But the vote must not be binding in the sense of interfering with the teachers' freedom of criticism. And the vote, before taken, must be



very carefully prepared. And the voters will have to be the "professional" psychologists of a sufficiently unified geographic-cultural region. By "professional" psychologists is meant the members of an organized body having strict requirements for admission, such as the American Psychological Association.

A committee of the Association, which nineteen years ago did something like preparing such a vote, failed in it. The reasons for its failure are probably three: (1) The embryonic state of psychology in 1909. (2) The committee work was a survey of existing school practice among teachers of whom the vast majority did not (or does not now) deserve the title of "professional psychologists." (3) The committee was too small; and its five members could not constitute subcommittees in which the "applications" of psychology could be given a sufficient voice, so that it all ended in the assertion of the existence of a "pure" psychology as remote from life as ever before.

It is time for us to be proud of and satisfied with the title of "psychologist" and to refuse to be referred to by the public under such titles as "a reflexologist, behaviorist, psychanalyst, gestaltist and what-not-ist." We must not teach in the first course anything merely because it once used to be taught. Neither must we teach in the first course anything marked as a patented brand. We must teach in the first course *the more generalized ones* from all *the applications* of human skill in our particular field of serving human needs. And by the aid of voting we must learn to agree more or less on what these generalized (pure) applications are. "Pure" science in the sense of "worthless" science is no science.

*The Procedure of Thinking About Mind.* J. B. MINER, The University of Kentucky.

A procedure for a scientist who tries to think about mind involves the rejection of the notion of mind, consciousness, or the subconscious as "ghostlike" entities which cannot be empirically studied. These are, however, useful terms for classifying certain groups of observable facts. The danger of speculative fancies and the disagreement of some introspections are inadequate reasons for omitting conscious facts from the field of science. Most important is a procedure for harmonizing various types of explanation of mental events. Here physical analogies are inadequate because of the absence of point to point correspondence between qualitative differences among conscious facts and mechanical quantitative changes of matter and motion.



The writer suggested and illustrated the use of an analogy of word-symbols to represent different relationships among individual activities. This analogy avoids the necessity of either a parallelistic or interaction interpretation. It also allows for possible causal, genetic, purposive, *gestalt*, and other explanations of psycho-physical series without logical contradictions.

*A Constant Error in the Prediction of Achievement.* JOSEPH PETERSON, George Peabody College.

This paper is an attempt to determine the predictability of success in the first course in psychology (General Psychology) on the basis of scores in one, two, or three intelligence tests. Two of the tests are standard (Alpha and Otis S.A.), while the third is a group ingenuity test lasting but ten minutes. The degree of predictability is usually determined from the correlated "criterion" and test scores by the same group of subjects; that is, after the standing is already known in the criterion (the subject or performance in which prediction is to be made) equations for prediction are built up from these standings of the several subjects tested and the test scores of the same individuals. From these data it is determined how well the forecasting of standing in the criterion can be done in other groups, given their several intelligence test scores. Such a procedure, of course, assumes a constancy of conditions from group to group that is rare. How much in error is this assumption as applied to successive college classes in psychology the students of which are graded by rather objective and competitive examinations? The consistency in the grading of the students in the present case (average of eight to ten examinations) was found to be slightly greater even than the consistency of ranking by one of the most widely used and well known intelligence tests. The reliability coefficient of the psychology scores as determined by the odds-evens method and Brown's formula was .84, as compared with .82 for Alpha. These coefficients are based on the responses of 51 students, mostly sophomores, who constitute a rather homogeneous group. The multiple correlation coefficients between psychology scores and the scores of two or three tests, combined in the best weighting for high correlation, are not much larger than the coefficients of Alpha alone with psychology, and range from .49 to .69. The predictability is thus little improved by the addition of other tests; at best it ranges from .13 to .28 better than a pure guess would give, a result that is certainly not encouraging as to indi-

vidual prediction under better than normal care in the grading of college work. The reason for this low predictability of psychology scores from scores in intelligence tests is probably to be found in the diverse interests and social activities of the students. In other words, given enough intelligence for one to become an average sophomore student, other things than sheer ability operate towards influencing college grades. A student of median ability may raise his rank markedly by hard and regular work and put behind him others who have better endowment but are more distracted by social factors. This is probably true for any college subject. What is also troublesome in prediction of success is this: when prediction is not within the same group but is extended to the forecasting of success in one class from regression equations derived from test scores and psychology marks in another class—the only true case of forecasting because only here the success in psychology is not already known—there is an average loss in precision of about 15 per cent in the already low predictive values given above. This was determined from about 200 actual predictions. But what is even more discouraging came out rather as a by-product of our work—the greatest errors in prediction are made on the students who actually make either the lowest or the highest marks in psychology classes. The predictions for the former are too high, and those for the latter are too low. The unfortunate thing is that the extreme cases who make very much or very little success are the very students for whom prediction would be most valuable, both for themselves and for the institution. Worst of all, this constant error in prediction seems to apply to all kinds of prediction of success, from tests or other data, and no correction for it seems at present to be possible. These studies, carried out by means of painstaking calculations on the individual students in four different classes through as many years, show that the various factors determining human success under conditions similar to those described are extremely complex; and that their determination to a high degree of accuracy will continue to challenge the genius of scientists for some time to come.

*An Experimental Study of the Behavior of Kittens Toward White Albino Rats.* W. W. ROGERS, New York University.

The five kittens, three females and two males, that were used in this experiment were born in the laboratory on January 27, 1928. Some of the rats used were the same age as the kittens, and some

were 31 days older than the kittens. The observation cages were 18 cm. by 18 cm. by 16 cm. high. When the kittens were one day old, each kitten was placed in a cage with a baby rat for ten minutes, and then with a rat 32 days old for ten minutes. During the remainder of the first week each kitten was kept in a cage with one of the older rats for one or two hours a day, while the experimenter carefully watched for any positive responses the kittens might make toward the rats. At the beginning of the second week kittens No. 1, No. 3, and No. 5 (the first two females, and the last a male) were each kept in an observation cage with a rat for six hours a day. Kitten No. 1 was kept with a rat of the same age as itself, while kittens No. 3 and No. 5 were kept with rats 31 days older than they for the first month. After the first month all kittens were kept with rats of the same age that they were. Until the kittens were six weeks old, they received their food chiefly from the mother. From this time on the three kittens mentioned above were kept in the experimental room all the time, ten hours a day in the observation cages with the rats and the remainder of the day free in the room. Kittens No. 2 and No. 4 were allowed to remain in an adjacent room with the mother all the time with the exception of one period of fifteen minutes a week, when each of these was placed in an observation cage with a rat.

During the first week of observation the responses made were mewling, varied movements about the floor of the cage, avoidance of rat when it was placed at kitten's nose, and a cessation of mewling and of making varied movements about the cage when they came into contact with the larger rats. Kitten No. 1 did not make any positive contact response to its companion rat until both kitten and rat were about a month old. Positive manipulatory responses of Kittens No. 3 and No. 5 toward their companion rats were first observed when the kittens were 11 days old. Kitten No. 1 made manipulatory responses toward its companion rat when they were 22 days old. These manipulatory responses, or playful behavior, became more aggressive as the kittens grew older. The varied movements of the kittens about the floor of the cages developed into specific escape behavior directed toward the door of the cage when the kittens were about a month old. The same type of behavior continued until the experiment was temporarily discontinued on April 5, when the kittens were 68 days old. Absolutely no positive responses connected with food-taking was made by any kitten toward a white rat. The behavior of kittens

No. 2 and No. 4 was not essentially unlike that of the other three kittens.

In order to determine whether the responses made by the kittens toward the white rats were general for somewhat similar rodents, or specific to white rats, each kitten was placed with a gray mouse on April 4. These gray mice differed from the white rats in color, size, and wildness. One gray mouse was very much wilder than the others. It was placed in the cage with kitten No. 5. This kitten oriented toward the mouse as it ran, caught the mouse, killed and ate it within 19 minutes. The other four kittens responded to the gray mice very much as they had responded to the white rats. On April 5 each kitten was again placed in a cage with a gray mouse. Kitten No. 5 again killed and ate the mouse placed in its cage, while the other four kittens either failed to orient toward the gray mouse or else made varied manipulatory responses toward the mouse. The interpretation suggested is that the wildness of the first mouse placed in the cage with kitten No. 5 was sufficient to make the mouse-situation different from the former rat-situation; and that the mouse-situation for the other four kittens was essentially the same as the former rat-situation. The response made by kitten No. 5 to its companion white rat was the same after killing and eating two gray mice as it was before.

*The Neo-Realistic Conception of Music.* HERBERT SANBORN,  
Vanderbilt University.

With respect to the significance of music two principal theories have been in conflict in the field of modern aesthetics, each of them with popular and scientific defenders. Perhaps the best known of these is the view which finds its most prominent practical and theoretical exponents in Wagner and Liszt, and which stands in sharpest contrast to the theory of the neo-realistic school that originated with Herbert. The most consistent representative of this latter point of view was Zimmermann, but its best known protagonist was Hanslick.

From the point of view of the neo-realistic school music is not expressive, consisting for them merely in formal patterns, while the emotion of the percipient and of the reproducing artist is taken to be real emotion. This subjective element is, however, considered to be irrelevant to the work of art as such. This view fails to note that the esthetic attitude is everywhere concerned not with real emotion but with emotion objectified or felt into the medium of communication between the artist and those with whom he communicates. It con-

siders the work of art in abstraction from subjects, whereas only in connection with subjects does the work of art come into existence. This should not be taken to imply that art and more especially music is not the bearer of a universal content. The content is not, however, specific emotions or the definite ideas by which emotion in general is rendered specific; but rather the general background of psychic life with its indeterminate emotional attitudes, its striving, and its obscurer ideas. The especial value of music is the expression of this unreflective aspect of life.



## BRITISH SCIENTIFIC INSTRUMENTS

BY WALTER R. MILES

*Stanford University*

A journal devoted to the subject of scientific instruments and dealing with their principles, construction and use is certain to contain a good deal of material of interest to psychologists. The Journal under review<sup>1</sup> was initiated in October, 1923, under the editorship of Dr. John S. Anderson. It was started and continues to be under the auspices of the (British) Institute of Physics with the coöperation of the National Physical Laboratory. It is a monthly publication and includes papers on practical and theoretical aspects of apparatus, notes on new instruments and modifications of old ones, and also on instruments of especial historical interest. There is a section on laboratory and workshop notes which impresses the reviewer very favorably; here commercial manufacturers of apparatus may present short descriptions of their products. These are indirectly advertisements and a small charge is made for each such "note" published. However, each such presentation is much more in the nature of a scientific article on the particular piece of apparatus than is the ordinary catalog statement or advertisement made by manufacturers. The Journal contains critical surveys of various classes of measurements. There are reviews of scientific books, correspondence and miscellaneous notes and notices. A series of tables for the constants and characteristics of different kinds of materials have appeared from time to time. There are announcements and reviews of scientific meetings and British apparatus exhibits. The present editor, Dr. C. V. Drysdale, is ably assisted by an eminent advisory committee, which includes physiologists and other biologists.

It so happens that this Journal has not been cited in the Psychological Index and it is hardly feasible to include abstracts from its first volumes in the current numbers of Psychological Abstracts. We will therefore take this occasion to bring together some notes concerning several of the descriptions of apparatus and other articles that have appeared in the first two volumes and might be of use to psychologists.

<sup>1</sup> *Journal of Scientific Instruments*, Cambridge University Press, London. Published monthly. Annual subscription 30s, separate numbers 2s 8d.

*Visual.* As new exposure apparatus we may call attention to the description by Elverson (11) of an "Oscilloscope." By this device and the use of timed light flashes the observer, aided by his positive after-images is enabled to examine certain *portions* of the movement of high speed mechanisms. The neon gas lamp, which has great possibilities for visual experiments and apparatus, is here used. The Rotoscope by Ashdown (1) is an expansion of the stroboscope idea. The view of the observer is artificially interrupted by a rotary shutter capable of giving a view at any frequency up to 50,000 per minute, with an aperture that is comparatively speaking very large, being about 100 times as great as in the old forms of stroboscope. The shutter is a small cylinder one inch in diameter, four inches long and weighing but one ounce. It has two rectangular slots cut through it and in these slots are secured thin plates equally spaced. When the cylinder is turned to the proper position one can see through clearly, the edges of the plates do not obstruct vision, more than when looking through a fine screen, but a slight rotation causes the plates to cut off the view. The highest definition is said to result with a shutter having ten plates each 0.5 mm. apart and with this shutter it has been possible to read ordinary newspaper print rotating on a disk at 300 revolutions per second. By means of the "rotoscope" many kinds of fast moving phenomena can be viewed and visually analyzed.

Campbell and Gardiner (7) describe a method of photo-electric color-matching. They use equivalent temperature in place of color and make comparison of the curves excited by a source in two photo-electric cells of different frequency-sensitivity characteristics. This method is about six times as sensitive as visual color-matching by experienced observers. A second paper, Campbell and New (8) reports continuation of the investigation. The results show that current-equivalents can be determined with an accuracy of 0.2 parts in 1,000. The article describes sets of standards. A simple apparatus for comparison of the lumens of two lamps, Macgregor-Morris and Mumford (16) consists of two identical hollow cubes in contact with one another. They are painted matt-white inside and a pair of small windows, one in each cube, is arranged in close juxtaposition. A standard lamp is placed in one and the unknown lamp in the other. The reading on a rotatable diaphragm measures the ratio of the two lamps. A portable instrument for the direct measurement of "day-light factor," Taylor (21), (defined as the ratio of the daylight

illumination at a point considered to that which could be gotten from an unobstructed horizon of uniform size) simplifies this determination. Ordinarily the measurements relate to objects or surfaces indoors and require two people to consummate them. With this small instrument one person can do it.

Vincent and Briggs (25) give construction and operation details for a capillary mercury lamp that can be operated on any voltage from 100 upwards. It takes but little current and so far as is known has no limit to its working life. An excellent instrument, a monochromator for the ultra-violet, visible and near infra-red spectrum, Beatty (2), is copiously illustrated by general diagrams, photographs, and six pages of working drawings published nearly full sized. The quartz mercury lamp with suitable filters is used as source.

*Auditory.* Tuning-forks continue to be useful in many kinds of experiments. Wood (26) gives an illuminating paper on some factors affecting frequency in electrically-maintained tuning-forks. It is shown that the weight of the base of a fork has an important influence on the frequency, and it is considered doubtful practice to place forks in horizontal position and have them vibrate in the vertical plane. The use of contact springs is discussed and criticized. Reed vibrators are described as in reality, "very poor tuning-forks," of which the base forms one prong—the frequency of which may easily vary by several per cent according to the mounting of the fork. The article gives curves, references, and a diagram of a weighted fork operating with spring plunger contacts. A well balanced tuning-fork according to Mason (17) should continue vibrating for many seconds when held in the hand, and subjected only to the damping by air. In forks of identical shape the one that gives the greater amplitude is the better balanced. A fork has recently been made of "elinvar" which is practically without temperature coefficient. Dye (10) gives a theoretical discussion of the antinode vibration of the tuning-fork's handle or support as compared to the vibration of the prong.

*Thermal.* Dr. Leonard Hill's Kata-thermometer is much used in Britain for measuring the cooling power of different ventilation conditions. Schuster (19) has produced a new recording Kata-thermometer. In place of alcohol as ordinarily used in the Kata-thermometer this new instrument employs toluol over mercury. Electrical connections are sealed into the tube so that electrical heating of the bulb to 100° F. is provided for. When this temperature is

reached, by the rise of the mercury column, a platinum contact is touched which shunts the current through the recording mechanism which continues to run until the bulb has cooled off to  $95^{\circ}$  F. The length of the run measures the cooling rate which is the factor secured by the Kata-thermometer. The work of Professor A. V. Hill on the direct heat-production in small bodies, as for example, the living muscle has been accomplished by the use of thermopiles. Hartree (13) considers the construction and operation of such thermopiles made of small alternate segments of iron and constantan wire and gives the interpretation of the galvanometric deflections.

*Timing.* Details of the design, construction and operation of a rugged chronoscope of synchronous motor type are given by Wood and Ford (27). They do not refer to Durlap's instrument. Their phonic-motor is arranged with ten poles or "stator-teeth." The rotor is made from a single bar with ten deep slots machined horizontally, leaving ten radial bars outstanding. The "stator" consists of two similar parts, each with ten teeth and in between the two parts there is *one* exciting coil which lies inside the shell and completely surrounds the rotor. This motor is manufactured separately by A. Tinsley & Co. The control is by a unique tuning-fork with contacts that are plungers in place of springs. The magnetic circuit produced has a remarkably large driving torque. They claim an instrumental accuracy of one-thousandth of a second. The grandfather clock can be made a precision instrument for laboratory time by following the directions given by Boys (5). This article outlines simple changes necessary to enable an old worn clock to keep time with an accuracy of two or three seconds a week, from summer to winter. The most important change deals with a firm support for the pendulum, and an easily made compensation pendulum. Both are diagrammed. It is a very informing discussion and pertinent to laboratory clocks.

*Recording.* Of kymographs there is no end but few could be more simple than the one discussed by Boys (4). The drum is horizontal and in place of being mounted on a central shaft, merely rests at one end on two V-edged wheels which enter a shallow groove in the piece of brass tube which constitutes the drum, and the other end rests directly on a worm gear which "denting the paper imperceptibly" turns the drum slowly by its motion. The drum is thus unattached and is merely rolled over by the worm drive. The power is supplied by some outside source. It is particularly adapted for slow speed work. A stand, Scott and Turner (20), that can be made



taller or shorter due to the fact that its supporting shaft passes through the table top is of interest in connection with lecture table arrangements.

Fitting probability and other curves to graphs of observations is much simplified by four-sided brass frames, Trotter (24), flexible at the corners and with silk thread stretched across one way, so that skewing the frame brings the threads nearer together than when it is in the form of a perfect square. One frame serves for ordinates, the other for abscissæ. With the frames lying so that the two sets of threads are at right angles to each other and are over the curve of observation, by skewing the frames the points of crossing of the threads can be made to practically match the observations, or at least fragments of the observation curve.

*Photographic.* Even a wide-angle lens will at times not include all that is desired. Here is a camera, Beck (3), that, for example, will photograph the entire sky (the entire horizon), in one view on a stationary plate. To take in a view of  $180^\circ$  requires that there be something in the nature of a preliminary lens, to perform a service somewhat like the water through which the fish's eye sees the aerial view above. It is known that the  $180^\circ$  of aerial view is compressed into a circular field subtending an angle of about  $97^\circ$  as viewed by the eye under water. This camera therefore has an outer lens with a diameter of about  $2\frac{1}{4}$  inches. The outside surface is deeply curved convex, but the inside surface is still much more deeply curved. About half way between this outer lens and the photographic film or plate, there is a compound photographic lens placed in such a way that stops and color screens may be inserted. Good definition is obtained over the whole plate. The exposure required for the entire sky of clouds does not exceed one second with a well lighted sky. Photographic examples obtained with the apparatus are illustrated. A camera using a photographic plate 15 cm. long which "shoots" past a slit at the rate of 300 cm. per second by means of elastic cords is presented by George (12). It is simply constructed and is of use in studying acoustical and mechanical vibration, and could be used with action currents from muscles and nerves. Thomas (23) describes a recording camera for taking short lengths (1-7 feet) of motion picture films. The ordinary defect of having lines produced on the film by the action of the teeth of the worm gear is eliminated by a simple fly wheel.



Timing is arranged for by a vibrating pointer which moves past the slit of the camera. Working drawings are given.

*Miscellaneous Electrical.* The design of solenoid electromagnets is treated by Higgs (14), who gives consideration to the magnetic circuit, the solenoid plunger, the effect of introducing iron into the core, the influence of changes in the winding, the influence of an iron return circuit for the flux, and a number of other topics. Substantial improvements are outlined which give greater rapidity of action of the relay in operation. Thomas (22) discusses a new relay wherein the motion of a small metallic surface with respect to a fixed oscillating coil produces a large change in the anode current, which may be used to operate almost any type of mechanism *without the utilization of any contacts*. It has been applied to the successful operation of a pendulum without any contacts being required to operate the mechanism for inserting energy into the stroke. The rate of the pendulum is thus extremely constant as it is left free to swing at its natural period.

Hydrogen ion concentration is a very common biological measurement. A platinum hydrogen electrode will not work well in the presence of oxygen. Glass electrodes are described, Brown (6), which are said to measure the hydrogen ion concentration when the ordinary hydrogen electrode is useless. A diagram of the electrode is given and a statement of results obtained with it. Prideaux (18) writes a theoretical article on the measurement of hydrogen ion concentration showing the applicability of the method to different solutions. References, data and diagrams are included.

The Journal under review is a very important addition to our scientific literature. It is excellently printed, well illustrated and follows the form of including a short abstract placed at the beginning of each article. It can be recommended to psychologists interested in laboratory or research apparatus.

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## PRECAUTIONS IN ANIMAL EXPERIMENTATION

From time to time laws are proposed which, if passed, would seriously hamper experiments with animals, and the experience of England with such laws has clearly shown the undesirability of legislation which restricts the investigator. What can be done to protect animal experimentation against unenlightened propaganda and legislation hostile to scientific research?

At the 1924 meeting of the American Psychological Association a committee to consider precautions in animal experimentation was appointed at the suggestion of Dr. W. B. Cannon who referred to precautionary measures taken by medical and zoölogical organizations and laboratories against censure brought by "anti-vivisectionists." In 1925 at the Ithaca meeting this committee offered resolutions which were adopted by the American Psychological Association.

The first resolution recommended that a code of rules regarding the treatment of laboratory animals be adopted. This code is already in use in medical research laboratories throughout the United States. Placards exhibiting the rules were furnished with the compliments of the American Medical Association and have been distributed to 66 laboratories represented in the year-book of the Association with request that the rules be conspicuously posted in every laboratory where experiments with animals are conducted. These rules are reproduced below:

### RULES REGARDING ANIMALS

1. Vagrant dogs and cats brought to this laboratory and purchased here shall be held at least as long as at the city pound, and shall be returned to their owners if claimed and identified.
2. Animals in the laboratory shall receive every consideration for their bodily comfort; they shall be kindly treated, properly fed, and their surroundings kept in the best possible sanitary condition.
3. No operations on animals shall be made except with the sanction of the director of the laboratory, who holds himself responsible for the importance of the problems studied and for the propriety of the procedures used in the solution of these problems.
4. In any operation likely to cause greater discomfort than that attending anesthetization, the animal shall first be rendered incapable

of perceiving pain and shall be maintained in that condition until the operation is ended.

Exceptions to this rule will be made by the director alone and then only when anesthesia would defeat the object of the experiment. In such cases an anesthetic shall be used so far as possible and may be discontinued only so long as is absolutely essential for the necessary observations.

5. At the conclusion of the experiment the animal shall be killed painlessly.

Exceptions to this rule will be made only when continuance of the animal's life is necessary to determine the result of the experiment. In that case, the same aseptic precautions shall be observed during the operation and so far as possible the same care shall be taken to minimize discomforts during the convalescence as in a hospital for human beings.

Director of the Laboratory.

Copies of these rules will be sent upon request to the committee on precautions in animal experimentation.

The second resolution recommended that the *open door* policy be accepted by the Association. The meaning of this policy may be made clear by quoting from a pamphlet published by the Blue Cross Society entitled "*First Public Declaration of the Open Door in Laboratories for Animal Experimentation in the United States.*"

"That there may be no possibility of a doubt on the part of the public with respect to their maintenance of the *Open Door*, Deans and Directors of Laboratories have clearly declared their willingness to admit at all times officials of Humane Societies in order that the latter may acquaint themselves with the actual conditions under which Animal Experimentation is being conducted. In several instances the proviso has been made that visitors shall have previously observed an operation on a human being in order that they may be able to appreciate the humaneness of laboratory methods. Some other reasonable qualifications have been made in a very few instances. The responsiveness to this movement from deans and directors all over the country is clearly shown in their letters as may be seen in the following excerpts quoted from them."

The pamphlet contains statements from deans and directors of 86 medical laboratories in the United States approving the *open door* policy. This attitude on the part of the laboratories has done much to mitigate statements regarding atrocities and cruelties to animals behind closed doors.

The third resolution adopted by the Association is the following: "That the American Psychological Association endeavor to enlist the coöperation of psychological journals in the defense and protection of animal experimentation and that it especially request them (a) to note and require that manuscripts which describe experiments with animals contain explicit statements about the measures taken to avoid needless pain or discomfort, and (b) to decline to publish manuscripts descriptive of experiments which violate the code of animal experimentation adopted by the Association." The importance of this precaution is obvious.

The fourth resolution recommends: "That classroom instruction and publicity on the part of psychologists concerning the nature, requirements, and values of animal experimentation be encouraged and facilitated."

The final resolution recommends that the Association maintain a standing committee on "precautions in animal experimentation" which shall coöperate with other organizations interested in safeguarding animal experimentation, and which shall endeavor with them to disseminate accurate information about animal experimentation and to combat attempts to prevent or restrict it.

The American Association for Medical Progress, Inc. (370 Seventh Avenue, New York City) distributes educational literature upon vivisection, vaccination and similar topics, provides talks, lectures, radio broadcasts, supplies information to legislatures when needed, and in other ways looks after the protection of scientific medical work. The writer believes that psychologists should be aware of this work and appreciate its importance.

Since psychologists today are using animals for experimental purposes it follows that they should assume part of the responsibility of protecting scientific investigation against unenlightened statement and legal enactment.

Quite apart from the above it should be remembered as a purely practical matter that mistreatment of animals may at any time render the experimenter liable to trial upon complaint from officials of a humane society.

Suggestions, criticisms and comments will be gladly received by members of the present committee which is composed of Professors Edward C. Tolman, Robert M. Yerkes, and the writer.

PAUL THOMAS YOUNG, Chairman,  
Committee on Precautions in  
Animal Experimentation.

University of Illinois, May, 1928.



## SPECIAL REVIEWS

BRONISLAW MALINOWSKI. *Sex and Repression in Savage Society*. N. Y.: Harcourt, Brace & Company, 1927. Pp. xiv + 285.

Professor Malinowski has attempted a partial explanation of the rôle of sex in social organization through the combined use of psychoanalysis and anthropology. Neither his anthropological nor his psychoanalytic point of view is entirely orthodox. His interpretations will not be accepted without argument, but his vivid Melanesian illustrations, always to the point, his forceful logic and his fresh outlook on matters which many of us thought long since settled, compel a recognition of the work as stimulating, regardless of the ultimate merit of its theories. In the first four chapters will be found an unusually interesting description of the place of the child in the metronymic family as compared to the patronymic.

DONALD YOUNG.

*University of Pennsylvania*

BORIS BRASOL. *The Elements of Crime*. New York: Oxford University Press, American Branch, 1927. Pp. xvii + 433.

Any attempt to analyze the nature and causes of crime, criminals and criminality in one volume must necessarily omit and condense much significant material. To this fact can be traced, perhaps, the most serious defect of *The Elements of Crime*, namely, the sketchy quality of portions of the work. This is especially noticeable in the sections dealing with religion and the family in their relation to crime. While the preface disavows any purpose "to present an all-embracing study of the subject," and considers the task accomplished if some of the "observations are found helpful in determining the nature of crime and understanding the intricate psychosocial mechanism which is responsible for the origination of a phenomenon menacing the welfare and safety of both individual citizens and society as a whole," such an apology does not automatically free the author from his obligation adequately to treat the major aspects of his announced subject.

Of the two parts of the volume, the second, on the "Psycho-Physical Nature of Crime," is stronger than the first, "Crime as a Social Phenomenon." There is no clearer and better balanced summary and interpretation of the mental element in crime than the one Mr. Brasol has given us in the second half of his study. The fact

that one of the two introductions to the study was written by Dr. William A. White guarantees a sound discussion of the rôle of psychiatry. Dean John H. Wigmore supports this point when he says in his introduction that "He (the author) brings . . . a thorough mastery of the literature of modern psychiatry, yet freed from the bias of the psychiatrist inexperienced in law." Where two men such as these unite in their approval there can be no doubt as to the essential accuracy, understanding, and value of the product.

Thus, while the inadequacies of treatment may be regretted, especially as found in the discussion of the social elements in criminality, the concise handling of the psychophysical characteristics of the criminal make this one of the most important additions in recent years to the literature of criminology.

DONALD YOUNG.

*University of Pennsylvania*

WILLIAM I. THOMAS AND FLORIAN ZNANIECKI. *The Polish Peasant In Europe and America*. New York: Knopf, 1927. (2 vols.) Pp. xv + 1115, 1117-2230.

This two-volume second edition of *The Polish Peasant in Europe and America* might be difficult to justify merely on the basis of mechanical improvements in printing and binding if it were an ordinary study in social psychology and sociology, for no material changes in content have been made. It is, however, a pioneer work in both fields and will long stand as the model and defense for the monographic presentation and interpretation of social facts. The thesis of the authors as to method is perhaps most clearly stated when they write: "We are safe in saying that personal life records, as complete as possible, constitute the *perfect* type of sociological material, and that if social science has to use other materials at all it is only because of the practical difficulty of obtaining at the moment a sufficient number of such records to cover the totality of sociological problems, and of the enormous amount of work demanded for an adequate analysis of all the personal materials necessary to characterize the life of a social group. If we are forced to use mass-phenomena as material, or any kind of happenings taken without regard to the life-histories of the individuals who participate in them, it is a defect, not an advantage, of our present sociological method" (pp. 1832-1833).

The "methodological note" in the first volume and the introduction to Part IV vigorously defend this method. In these sections

may also be found the most concise explanations of the authors' concepts of social attitudes, values, causation, etc., all of which are distinct contributions of the greatest significance to social psychology. The masses of facts from the life histories of Polish peasants, both in Poland and as immigrants in America, demonstrate the efficiency not only of these concepts but also of the monographic method in dealing with such problems of social disorganization as may be found in family relations, sex delinquency, crime, and the like.

A detailed critical review at this late date (the date of original publication was 1918) would be presumptuous, for such a striking contribution should be well known by all students of human relations. Unfortunately, there is reason to believe that its significance has escaped many of these students, especially those whose major interests lie in the field of psychology. If the new edition serves to make Thomas and Znaniecki's work better known to only a few of these it will justify the considerable expenditure obviously required for the presentation of the work in such an excellent edition.

DONALD YOUNG.

*University of Pennsylvania*

WHIPPLE, H. D., *Making Citizens of the Mentally Limited*. A Curriculum for the Special Classes. Public School Pub. Co., Bloomington, Ill., 1927. Pp. vi+374.

This book is, as its subtitle denotes, an attempt to describe what should be taught in special classes for the mentally deficient. The suggestions are intended for children whose mental ages range approximately from four to twelve years, and whose I.Q.'s range from about 55 to 75. The first chapter deals with character training, and it contributes little more than a mere list of desirable traits. The second chapter on citizenship is more concrete and contains many useful suggestions. In a similar manner the other subjects of the school are discussed—reading, language, arithmetic, health, nature study, industrial arts, cookery and housekeeping. The influence of the project method is seen in the numerous lists of suggested projects. These so-called projects vary from "dolls" to a "relief map of the local community." Evidently the term project is coming to mean nothing more than a class exercise or a task to be done. The book is full of suggestions and is well provided with bibliographical references. It should be extremely helpful to the special class teacher.

R. PINTNER

*Teachers College, Columbia University*

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